



**City of Rocky Mount: Wastewater Systems
Annual Performance Report
(January through December 2010)**

Tar River Regional Wastewater Treatment Plant and Collection System

I. General Information

Facility/System Name: Tar River Regional Wastewater Treatment Plant

Responsible Entity: City of Rocky Mount
Wayne A. Hollowell, Director of Water Resources

Persons in Charge: Kirk Bass, Supt. of WWTP, Land Application
Edward Joyner, Supt. of Water & Sewer Services

Applicable Permits NPDES Permit #NC0030317
Land Application Permit #WQ0005568
Collection System Permit #WQCS00011

Description of Collection System and Treatment Process:

The City of Rocky Mount maintains 427 miles of wastewater collection lines with 36 sewer lift stations. This collection system receives wastewater from four municipalities and parts of Nash and Edgecombe counties. The collection system discharges to the Tar River Regional Wastewater Treatment Plant. This plant is permitted to treat twenty-one (21) million gallons per day of wastewater by a pure oxygen activated sludge process using the Air Products "A2O OASES" biological nutrient removal process which provides both nitrification (conversion of ammonia to nitrates) and denitrification (conversion of nitrates to gaseous nitrogen). The effluent is filtered and disinfected before being returned to the Tar River. Waste activated sludge is aerobically digested to permitted parameters and recycled through land application.

II. Performance: Summary of performance for reporting period

The Tar River Regional Wastewater Plant treated 4.05 billion gallons of wastewater in 2010. The plant was compliant with all permit conditions for the entire year.

Removal of CBOD₅ (Carbonaceous Biochemical Oxygen Demand) contaminants was 99.5%, total suspended residue was removed at a rate of 99.5%, and NH₃N (ammonia nitrogen) removal rate was 99.3%.

The table below will serve to exhibit the Wastewater Facility's performance in relationship with our NPDES (National Pollutant Discharge Elimination System) permit limits.

**TAR RIVER REGIONAL WASTEWATER PLANT
EFFLUENT ANALYSIS**

Parameter	Summer (Apr-Oct)		Winter (Jan-Mar & Nov-Dec)	
	NPDES Limits	Actual Values	NPDES Limits	Actual Values
pH	6 to 9	6.1 to 7.2	6 to 9	6.0 to 7.0
Residual Chlorine	0.028 mg/L	<0.020 mg/L	0.028 mg/L	<0.020 mg/L
CBOD ₅	5 mg/L	0.8 mg/L	10.0 mg/L	0.5 mg/L
Ammonia Nitrogen	2 mg/L	0.1 mg/L	4 mg/L	0.3 mg/L
Total Suspended Residue	30 mg/L	1.4 mg/L	30 mg/L	0.7 mg/L
Fecal Coliform	200/100 ml	1.4/100 ml	200/100 ml	1.3/100 ml
Dissolved Oxygen	6.0 mg/L minimum	8.4 mg/L	6.0 mg/L minimum	9.3 mg/L
Cyanide	0.014 mg/L	< 0.005 mg/L	0.014 mg/L	<0.005 mg/L
Flow	21 MGD	9.7 MGD	21 MGD	11.3 MGD

Permit Non Compliance:

The Tar River Regional Wastewater Treatment Facility was in full compliance with all sampling, monitoring, and discharge requirements for the year 2010.

Sanitary Sewer Overflows:

The City of Rocky Mount Water Resources Department has a goal of zero sanitary sewer overflows. Sanitary sewer overflows result from various causes including infiltration and inflow due to high water level, blocked pipes from rags, roots, and grease accumulations, broken pipes from corrosion and construction activities, and power failures at sewer pump stations. The City is reducing the potential for overflows by installing back up generators for pump stations, cleaning lines, and working to reduce infiltration and inflow problems. Citizens of Rocky Mount area can help with the problem by properly disposing of spent household products, and disposing of greases, oils, and food scraps in solid waste rather than down the drain.

There were three extreme downpours in 2010 which triggered eleven sewer overflows in 2010:

January 25, 2010: It rained 1 3/4" when soils were saturated:

100 block of Riverside Drive. 22,500 gallons
 1600 Block of Overton Drive: 12,000 gallons
 1109 Johnson Street: 12,000 gallons

March 29, 2010: It rained more than 2 ¾" causing localized flooding.

2412 North Wesleyan Blvd: 10,000 gallons
Intersection of Westminster Drive and Westminster Lane: 20,100 gallons
100 block of Riverside Drive: 10,000 gallons
1600 block of Overton Drive 3,600 gallons
1109 Johnson Street: 16,800 gallons

September 29 and 30: It rained 5 7/8" on these days following 4"+ rain earlier in the week.

1600 Block of Overton Drive 17,400 gallons on Sept. 29
100 Block of Riverside Drive 97,500 gallons on Sept. 30
1100 Block of Johnson Street: 6,000 gallons on Sept. 30

Collection System Improvements:

A supervisory control and data acquisition (SCADA) system was expanded to cover the 19 highest priority sewer pumping stations and several WWTP facility monitoring points. Additional sewer lift stations will be added to the SCADA with the goal of having all lift stations remotely monitored by 2013.

The sewer lines are inspected and cleaned daily by a full time CCTV crew and sewer jet trucks. Over 44 miles of sewer lines were cleaned to clear built up sediment, grease, debris, and root intrusions. Over 9 miles of sewer lines were smoke tested to identify points of inflow and other sewer defects such as missing sewer clean out plugs.

Compass Creek Phase 1 sewer outfall was commissioned in August 2010. It is a 10,000 foot long 24" gravity sewer which delivers the sewage from the north part of town (near the old Moore's Building Supply) to our large pumping station on Hwy 97 east. This eliminated a sewer pump station, greatly reduced the flow going to two other pump stations, increased availability of sewer, and improved performance of a sewer that overflowed in March 2010.

The Leggett Park sewer improvements, a Clean Water Trust Fund Project, provided sewer to 57 customers allowing them to abandon their septic systems.

A 15" sewer connecting the Country Club Drive sewer to the Stoney Creek outfall will be constructed in 2011. This will eliminate an aerial sewer crossing of Stoney Creek and improve the performance of sewer on Overton Drive which overflowed three times in 2010.

III. Notification:

This report has been included on the City of Rocky Mount Water & Sewer web page and published in the Rocky Mount Telegram.

Certification:

I certify under penalty of law that this report is completed and accurate to the best of my knowledge. I further certify that this report has been made available to the users or customers of the named system and that those users have been notified of its availability.



Wayne A. Hollowell
Director of Water Resources
City of Rocky Mount

Date: 21 February 2011